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room visits (ER), hospitalizations (HOS) using medical claims data, and prescription costs (Rx) using pharmacy claims data. Analysis of covariance was used to determine differences in health care use and expenditures, adjusting for age, gender, and number of co-morbidities. **RESULTS:** There were 13,796 participants in the analysis. Baseline characteristics (age, gender, and number of co-morbidities) were comparable in the two groups after matching. Eighty percent of migraine participants identified were female. Analyses involving the complete models showed that migraineurs incurred significantly higher expenditure than non-migraineurs. After adjusting for age, sex and number of co-morbidities, migraineurs had significantly more ER visits per year (0.7 vs. 0.2, $p < 0.0001$). Annual ER, HOS, and Total expenditures were significantly higher in the Migraine cohort (ER: $480 vs. $125, $p < 0.0001$ and HOS: $980 vs. $588, $p < 0.00001$ and Total: $4233 vs. $2004, $p < 0.0001$). **CONCLUSION:** Migraine patients utilize more health care resources and incur higher health care expenditures. Study findings highlight the benefits to be realized by managing individuals with migraine.

NEUROLOGICAL DISORDERS— Patient-Reported Outcomes

PND24

IMPACT OF NON-ADHERENCE TO ANTIEPILEPTIC DRUGS ON MORBIDITY

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OBJECTIVE: Medication non-adherence among patients with chronic conditions can have both clinical and economic consequences. The objective is to investigate whether non-adherence to antiepileptic drugs (AEDs) is associated with increased morbidity relative to adherence, as proxied by health care utilization and costs, in a Medicaid population with epilepsy. **METHODS:** A retrospective open-cohort design using state Medicaid claims data from Florida, Iowa and New Jersey in the period of January 1997–June 2006 was employed. Patients aged ≥18 with ≥1 diagnosis of epilepsy, ≥1 neurologist visit, ≥2 AED dispensings, and ≥6 months of baseline period were included. Medication possession ratio (MPR) was used to evaluate AED adherence on a quarterly basis with MPR ≥0.8 considered adherent and <0.8 non-adherent. The association of non-adherence with health care utilization was assessed using univariate and multivariate Poisson regressions to model frequency of hospitalizations, inpatient days, emergency room (ER), and outpatient visits per person-year of observation. Quarterly per-patient inpatient, outpatient, ER, and pharmacy costs were calculated across non-adherent and adherent quarters for the under-65 population and cost differences computed. Adjusted incremental costs of non-adherence were estimated with multivariate Tobit regression models. **RESULTS:** A total of 33,658 patients met the study inclusion criteria (28,470 under-65), together contributing 388,564 (74%) adherent and 136,550 (26%) non-adherent quarters. Non-adherence was associated with significantly higher incidence of hospitalizations (incidence rate ratio [IRR] = 1.39, 95% confidence interval [CI] = 1.37–1.41), inpatient days (IRR = 1.76, 95% CI = 1.75–1.78), and ER visits (IRR = 1.19. 95% CI = 1.18–1.21). Non-adherence was associated with positive quarterly incremental costs related to serious outcomes, including inpatient ($4320, 95% CI = $4077–$4564) and ER ($303, 95% CI = $273–$334) services. **CONCLUSION:** Non-adherence to AEDs is relatively common and appears to be associated with increased morbidity as represented by higher health care utilization and costs.

PND25

EXPLORING THE RELATIONSHIP BETWEEN DIFFERENT DISPENSING SYSTEMS AND MEDICATION COMPLIANCE AND PERSISTENCY IN MULTIPLE SCLEROSIS PATIENTS USING PHARMACY CLAIMS DATA

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OBJECTIVE: Our study explores the relationship between 30-day and 90-day pharmacy dispensing systems and patient medication compliance, persistency, and financial incentive. **METHODS:** Retrospective pharmacy claims data of multiple sclerosis (MS) patients using four different medications were extracted from a pharmacy database. Patients were followed one year. Compliance was measured using the medication possession ratio (MPR), calculated using the ISPOR method. Anniversary method and Kaplan-Meier survival curves were applied to describe patients' persistency. Associations with drop-off and different systems were assessed using Cox regression model. Wilcoxon-Mann-Whitney test was used to compare the mean patient out-of-pocket and payers' costs for two systems. **RESULTS:** Study sample consisted of 29,808 eligible MS patients predominantly female (77.01%), mean age of 48.4 years. Therapy-specific MPRs on the 30-day and the 90-day system, respectively, were 89.39% and 93.77% with a hazard ratio (HR) for drop-off of 1.657 for Interferon beta-1a (Avonex), 82.72% vs. 88.92% (HR = 1.486) for Interferon beta-1b, 81.48% vs. 88.21% (HR = 1.480) for glatiramer acetate and 87.46% vs. 90.73% (HR = 1.606) for Interferon beta-1a (Rebif). Overall MPR comparison between 30-day and 90-day was 85.55% vs. 90.79% (HR = 1.557). Cost per dose for patients out-of-pocket and payers for a 30-day supply was $70.78 and $1402.10, respectively. In contrast, a 90-day supply was $30.59 and $1404.70, respectively. Significance tests showed the comparison was statistically significant at level 0.05, except comparison between payer's costs with a p-value of 0.46. **CONCLUSION:** MS patients using 90-day have higher MPR than patients using 30-day. The patients using 30-day are more likely to drop off, with a 55.7% higher risk of discontinuation. Results suggest that providing a 90-day supply improves MS patients' compliance and persistency within the one-year study period. Patients spend less when using 90-day system. Future study focuses on pharmacoeconomic impact of the dispensing system, incorporating outcome variables for MS patients' quality of life.

PND26

COMPARISON OF COMPLIANCE AND PERSISTENCE WITH IMMUNOMODULATING AGENTS FOR MULTIPLE SCLEROSIS IN A COMMERCIALLY INSURED POPULATION

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OBJECTIVE: To examine compliance rates, measured with the medication possession ratio (MPR) and 12-month persistence rates of patients initiating 1 of 4 immunomodulating treatments for multiple sclerosis (MS). **METHODS:** The study population consisted of patients aged 18–64 years initiating MS treatment from January 2, 2004, to July 5, 2005. Patients were identified from an administrative claims database (PharMetrics, Inc.,

Watertown, MA). Patients had continuous health plan enrollment for ≥12 months before and ≥15 months after their first MS prescription. The proportion of patients with MPR >85% (appropriate compliance) and 12-month persistence rates (proportion of patients with drug therapy at month 12 without a lapse of therapy >90 d) were evaluated across 4 treatment groups: interferon beta (IFNβ)-1a subcutaneous (SC), IFNβ-1a intramuscular (IM), IFNβ-1b, and glatiramer acetate (GA). Treatment comparisons were evaluated by using Wilcoxon rank sum and chi-square tests for continuous and dichotomous variables, respectively. **RESULTS:** Immunomodulating treatment was initiated in 3195 patients (IFNβ-1a SC, n = 799; IFNβ-1a IM, n = 905; IFNβ-1b, n = 344, and GA, n = 1147). Sex, geographic region, and health plan and product types were similar across all treatment groups. Mean age was statistically higher in the IFNβ-1a IM groups vs the IFNβ-1a SC and GA groups (44.9 vs 43.5 and 43.8 y, respectively, $P < 0.01$) but not with the IFNβ-1b group (44.4 y). Compliance (MPR ≥ 85%) was significantly higher with IFNβ-1a SC vs IFNβ-1b (49.7% vs 39.8%; $P = 0.002$) but not with GA (45.7%) or IFNβ-1a IM (48.1%). IFNβ-1a SC patients had a persistence rate of 60.3%, significantly higher than that of IFNβ-1a IM (54.9%) and IFNβ-1b (52.9%; $P < 0.03$, for both) but not GA (60.5%; $P = 0.936$). **CONCLUSION:** All 4 groups were comparable in terms of demographic characteristics. Although differences in compliance were less pronounced, the IFNß-1a SC and GA treatment groups had the highest persistence rates.

PND27

RELATIONSHIP BETWEEN GAPS IN DRUG TREATMENT FOR MULTIPLE SCLEROSIS AND INCIDENCE OF EXACERBATIONS: FINDINGS FROM A NATIONAL MANAGED CARE DATABASE

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OBJECTIVE: This study examined the relationship between medication gaps and severe MS relapses. **METHODS:** Subjects were selected from the PHARMetrics database if they had at least one MS drug (Avonex®, Betaseron®, Copaxone®, Rebif®) claim from January 1, 2000 through December 31, 2004, and, were continuously eligible for 24-months following their first disease modifying prescription (index date), in addition to 6-months prior to the index date. Subjects were excluded if the were <18 or >65 years of age, exposed to Tysabri® after the index date, had evidence of study medication use in a health care facility, or lived in a long-term care facility. A severe MS relapse was defined as an "MS-related" hospitalization or emergency room visit. Maximum gap in therapy (Maxgap), was defined as the longest continuous period with no evidence of study medication availability (based on dispensing date and days supply). Maxgap was categorized as 0–10 days, 11–89 days, and 90+ days. Covariates included, age, gender, region, and treatment status (new or existing), comorbidities, and therapy type (mono- or multi-drug therapy). **RESULTS:** Subjects (N = 2388) had a mean age of 43.9 years, 76.7% were new patients, 8.1% had at least 1 severe MS relapse over the 24-month study period, and 76.4% were female. Maxgap had a significant odds ratio (OR) of 1.925 (p = 0.007) for the 90+ day group (0–10 day reference). Monotherapy use for the 4 study drugs was associated with reduced risk of severe relapse (ORs between 0.450 and 0.552). Other significant covariates were comorbidity and East region (ORs = 1.090 and 1.495 respectively). Age, gender, and the other regions were not significant at alpha = 0.05. **CONCLUSION:** Gaps in MS drug therapy longer than 90 days are associated with a higher risk of severe MS relapse compared to short or no gaps in treatment.

PND28

IMPROVEMENTS IN QUALITY OF LIFE FOLLOWING TREATMENT WITH BOTULINUM TOXIN TYPE A FOR CERVICAL DYSTONIA

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OBJECTIVE: The objective of this analysis was to evaluate the effect of botulinum toxin type A on quality of life in patients with cervical dystonia. **METHODS:** The study consisted of a 10-week, nonrandomized, open-label period followed by a 10-week, randomized, double-blind, placebo-controlled, multicenter, parallel-group period. Patients were randomized to receive either botulinum toxin type A, at a dose determined by the physician based on the patient's established prestudy treatment regimen and the patient's presentation, or placebo. Patients completed the SF-36 Health Survey to evaluate the following quality of life attributes: physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health. **RESULTS:** A total of 170 patients were randomized to treatment. A significant difference was seen in the change from week 0 to week 6 for the physical functioning domain in which the botulinum toxin group had a mean change of 2.00 (improvement) and the placebo group had a mean change of −3.03 (worsening) (P = 0.036). Botulinum toxin produced greater improvement than placebo for all other domains except social functioning; however, the differences between groups were not significantly different. Rates of adverse events were nearly equivalent between groups (59.1% BoNT-A vs. 58.5% placebo group). **CONCLUSION:** Prior literature indicates that the SF-36 is not a sensitive measure of the change in quality of life due to treatment in the cervical dystonia population. Despite this, the botulinum toxin type A treatment group showed significantly improved physical functioning. Furthermore, important trends were identified in other domains.

PND29

REVIEW OF QUALITY OF LIFE INSTRUMENTS IN MIGRAINE

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OBJECTIVE: Migraine, affecting 11% of the US population, is a vastly under diagnosed and underreported disease. Migraine can impact patients' work and studies, family relationships, social relationships and emotional well-being thus undermining quality of life. A review of quality of life instruments in migraine is summarized. **METHODS:** Review of literature using Pubmed with combinations of search terms 'migraine', 'quality of life', 'questionnaire' was conducted. Articles were selected based on measurement of disability or quality of life in migraine. Fields extracted from articles for each instrument and on the basis of which analyzed included name and type of instrument, applicable age group, types of respondent, means of administration, items and domains, scaling, item selection and psychometric properties. Pediatric versions of questionnaires were not included in the study. **RESULTS:** Of the instruments that were identified 3 were generic, 11 were migraine specific questionnaires for quality of life in migraine and 3 were migraine specific questionnaires testing patients' response to therapy. The average age of participants ranged from 36.5 years to 44 years. The items varied in